

USCG/NOAA SARSAT CONFERENCE 2008

False Alerts

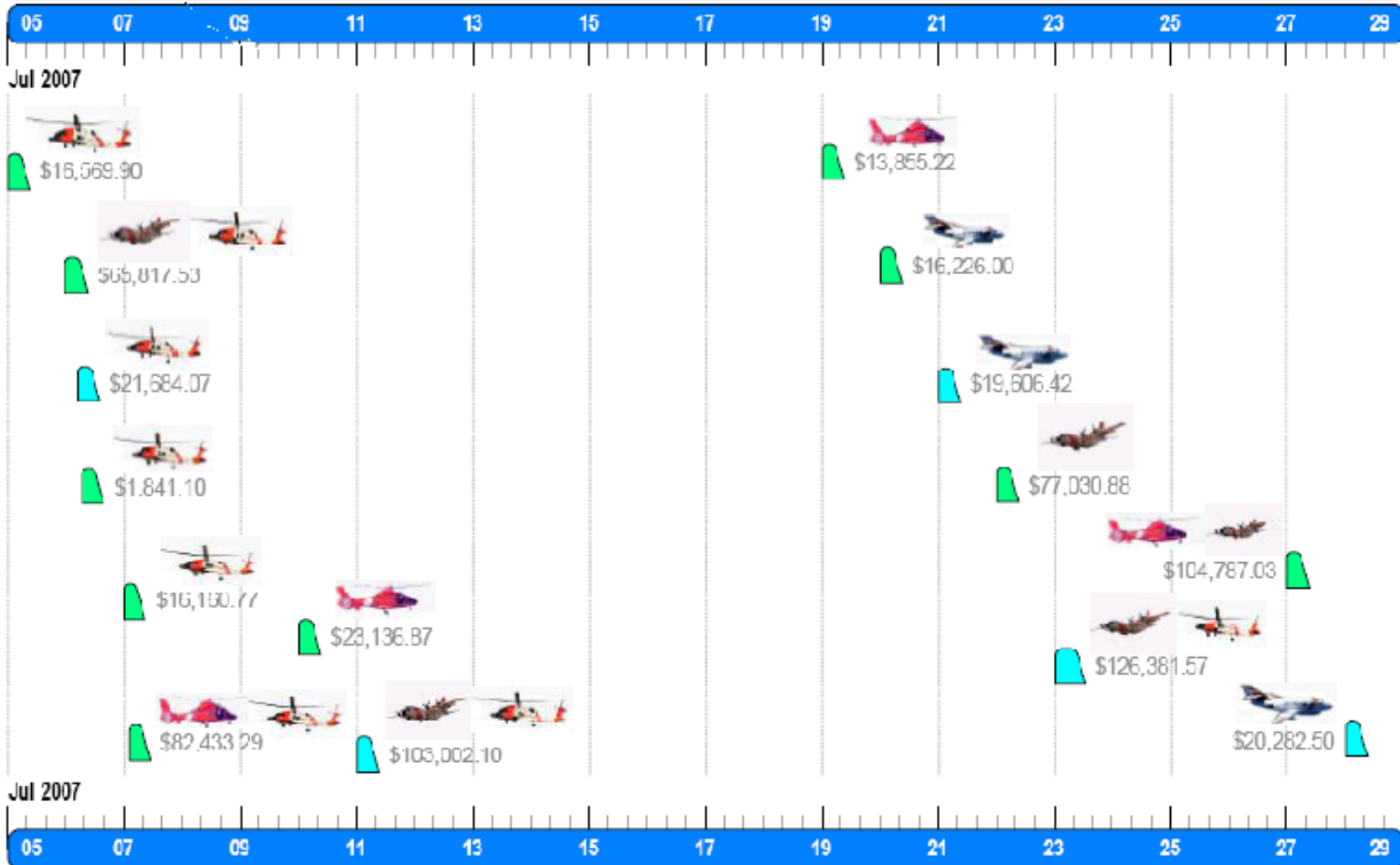
What causes False Alerts?

What did you enter in IHDB?

Why do we care about EPIRB False Alerts?

- 96% EPIRB Alerts are false.
- 85% Resolved by CC with registration and good detective work.
- \$3.6 million in A/C time and fuel on EPIRB false alerts.
- Projected increase in EPIRB population will bring increase in number of false alerts.

Cost of Coast Guard A/C Sorties Searching for False 406 EPIRB Activations for the Month of July 2007 - \$708,815.25



01/18/2008

L.T.Yarbrough, D7 CFVS

EPIRB Operational Requirements

- Positive visual and/or audible indication that EPIRB is activated (strobe light flashing).
- Easily manually deployed, activate, and deactivated, and transferred to survival craft.
- **Not be activated or deactivated by conditions encountered in maritime environment.**

Prevention of Inadvertent Activation

- Must be fitted with means to prevent inadvertent activation and deactivation.
- Not automatically activate when water washes over while in bracket.
- Most EPIRBs use bracket with magnet to disable activation circuit.
- EPIRB held securely in bracket when bumped or vibrated.

False Alert Study

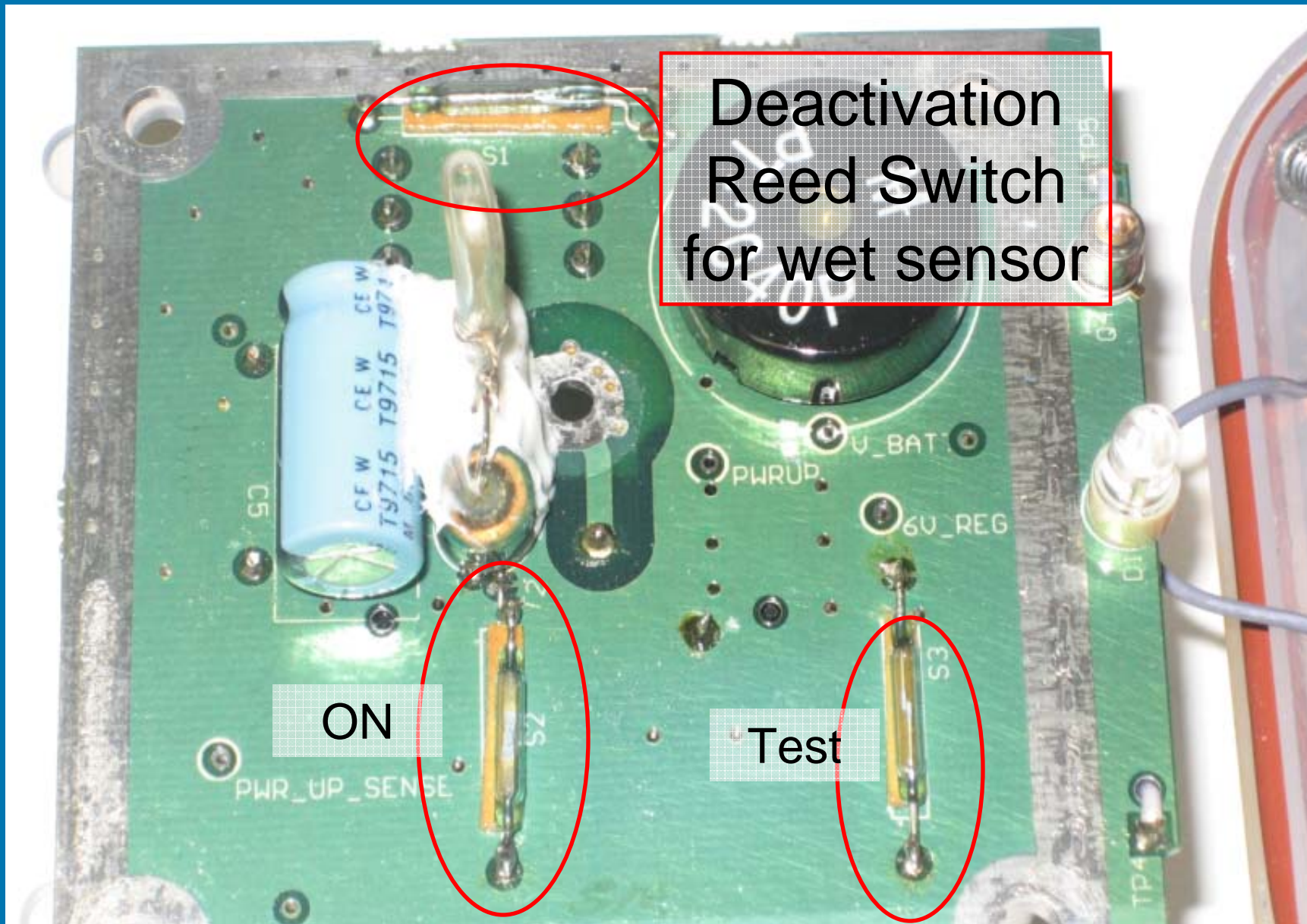
67% Mounting Failure.

- CG Study of False Alerts.
- 232 Secondary Collection – Critical ?'s.
- 23 EPIRB Testing
- 140 Activated in Bracket.
- 15 Knocked from Bracket.

EPIRB Operational Requirements

Not be activated or deactivated by conditions encountered in maritime environment.

**67% Of False Alerts
Mounting Failure.**

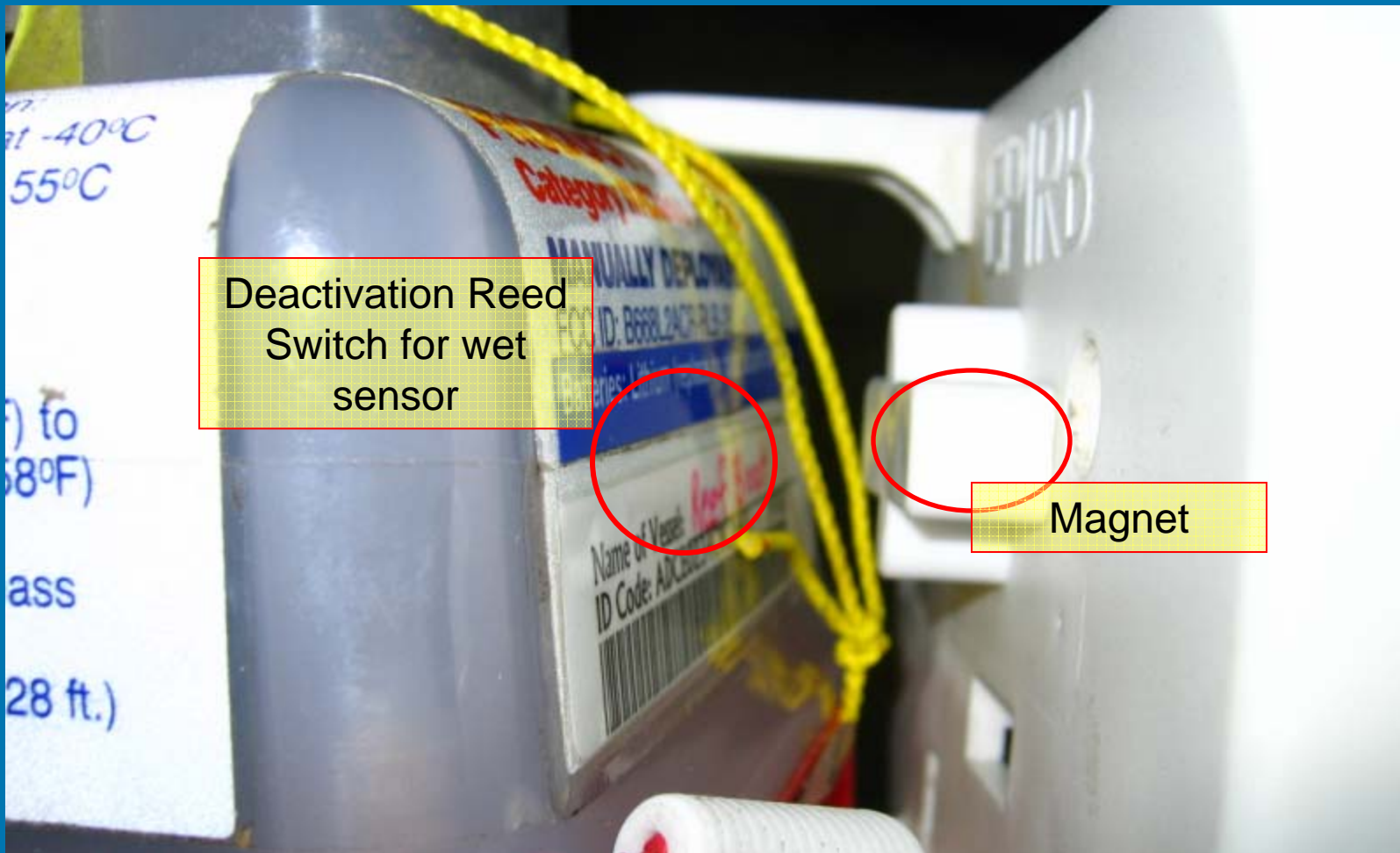


Deactivation
Reed Switch
for wet sensor

ON

Test

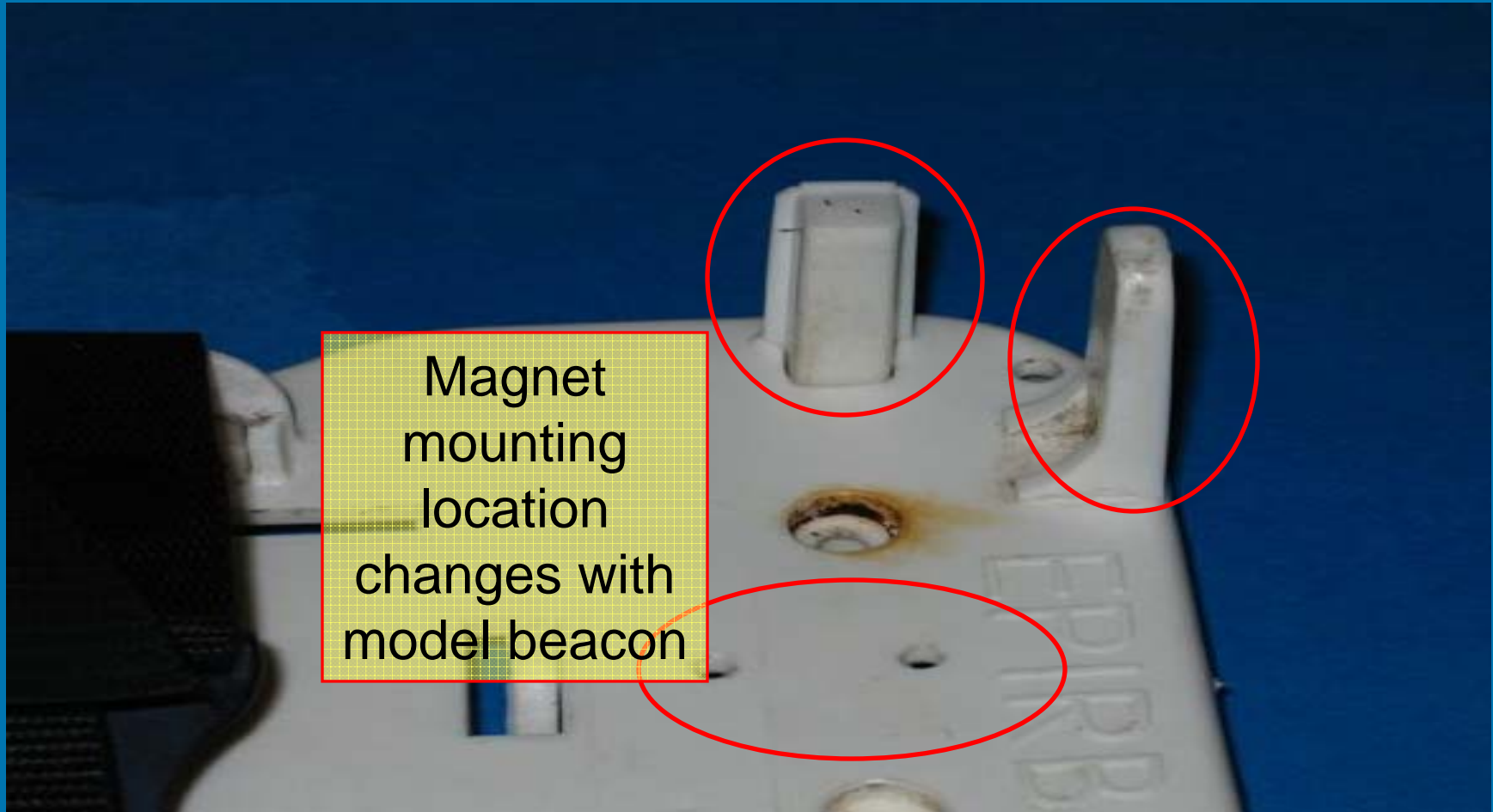
Wet Sensor Deactivation System



01/18/2008

L.T.Yarbrough, D7 CFVS

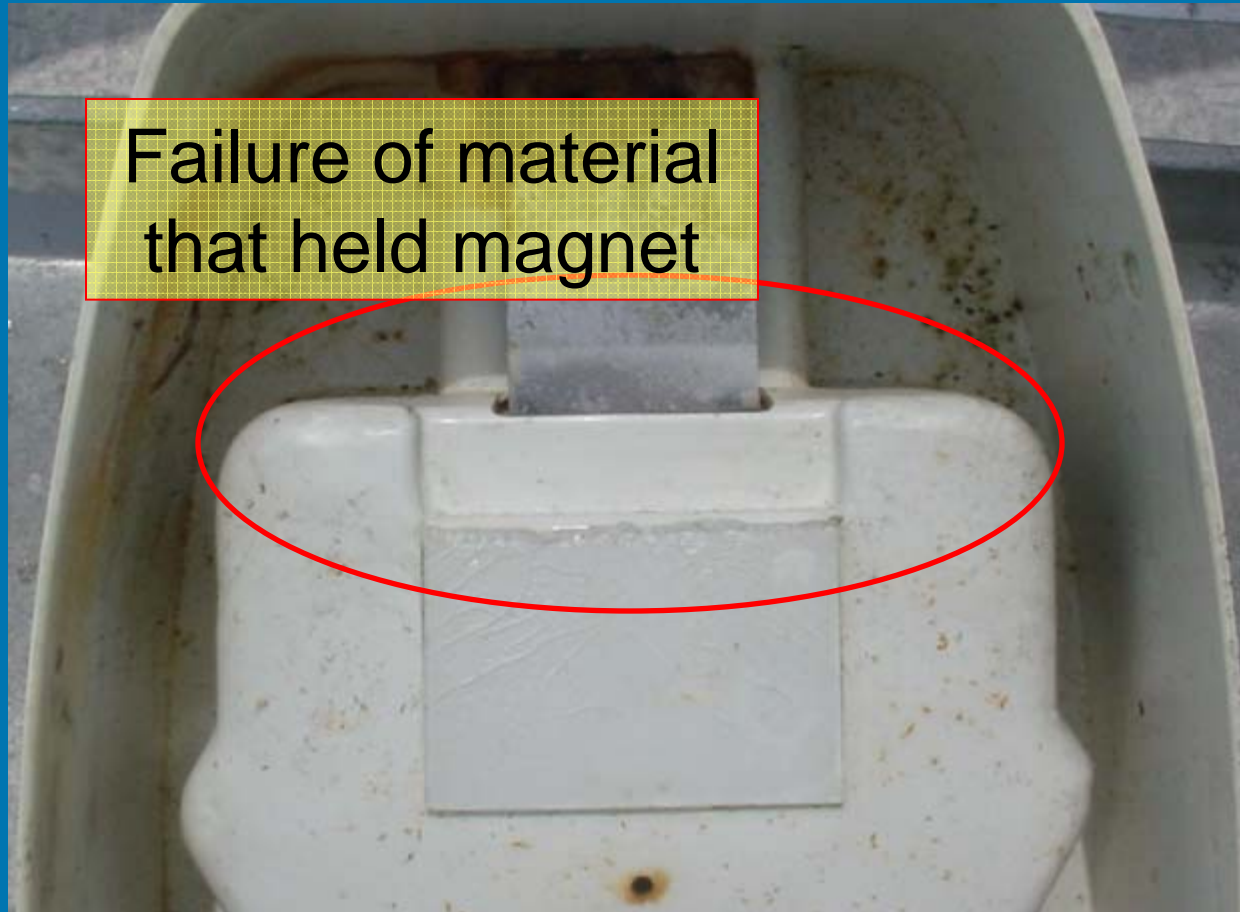
ACR Universal Low Pro™ Cat 2 Bracket



01/18/2008

L.T.Yarbrough, D7 CFVS

Magnet Missing



01/18/2008

L.T.Yarbrough, D7 CFVS

Magnet Still There



01/18/2008

L.T.Yarbrough, D7 CFVS

Magnet Corrosion



01/18/2008

L.T.Yarbrough, D7 CFVS

Magnet Corrosion



01/18/2008

L.T.Yarbrough, D7 CFVS

EPIRB Mounted Backward



01/18/2008

L.T.Yarbrough, D7 CFVS

EPIRB Assembled Backward



01/18/2008

L.T.Yarbrough, D7 CFVS

Not Just a US Problem!!



01/18/2008

L.T.Yarbrough, D7 CFVS

Beacon False Alert Rate For 2005



False Alert Rate By Beacon Type

(Number of False Alerts/Estimated Beacon Population)

EPIRB

1.67%

ELT

10.84%

PLB

0.68%

Beacon False Alert Rate



**False Alert Rate = False Alerts / Estimated Beacon Population By
Manufacturer and Model**

Beacon Type	Model Number	2004	2005	2006
EPIRB	Model 43		0.47%	1.42%
EPIRB	Model 27	0.59%	1.25%	1.36%
EPIRB	Model 26	0.67%	1.81%	1.36%
PLB	Model 45		0.41%	1.31%
EPIRB	Model 11		1.95%	1.29%
PLB	Model 12	1.96%	0.49%	1.25%
EPIRB	Model 19	1.26%	1.40%	1.22%
EPIRB	Model 21	1.21%		1.22%
EPIRB	Model 37		0.96%	1.13%
EPIRB	Model 16		1.91%	1.11%

Beacon Type	Model Number	2004	2005	2006
EPIRB	Model 22	0.96%	1.61%	1.07%
ELT	Model 54			1.04%
EPIRB	Model 18	1.37%	1.09%	1.00%
EPIRB	Model 24	0.70%	2.40%	0.96%
EPIRB	Model 44		0.45%	0.90%
EPIRB	Model 9	2.32%	3.38%	0.78%
EPIRB	Model 20			0.76%
ELT	Model 52			0.68%
PLB	Model 35		1.20%	0.65%
EPIRB	Model 36		1.14%	0.54%

01/18/2008

L.T.Yarbrough, D7 CFVS

Category 1 ACR Satellite₂ 406 MHz



Category 1 ACR Satellite₂ 406 MHz



Category 2 ACR Satellite, 406 MHz



Category 2 ACR Satellite₂ 406 MHz



Category 1 McMurdo 406 GPS



Category 1 McMurdo 406 GPS

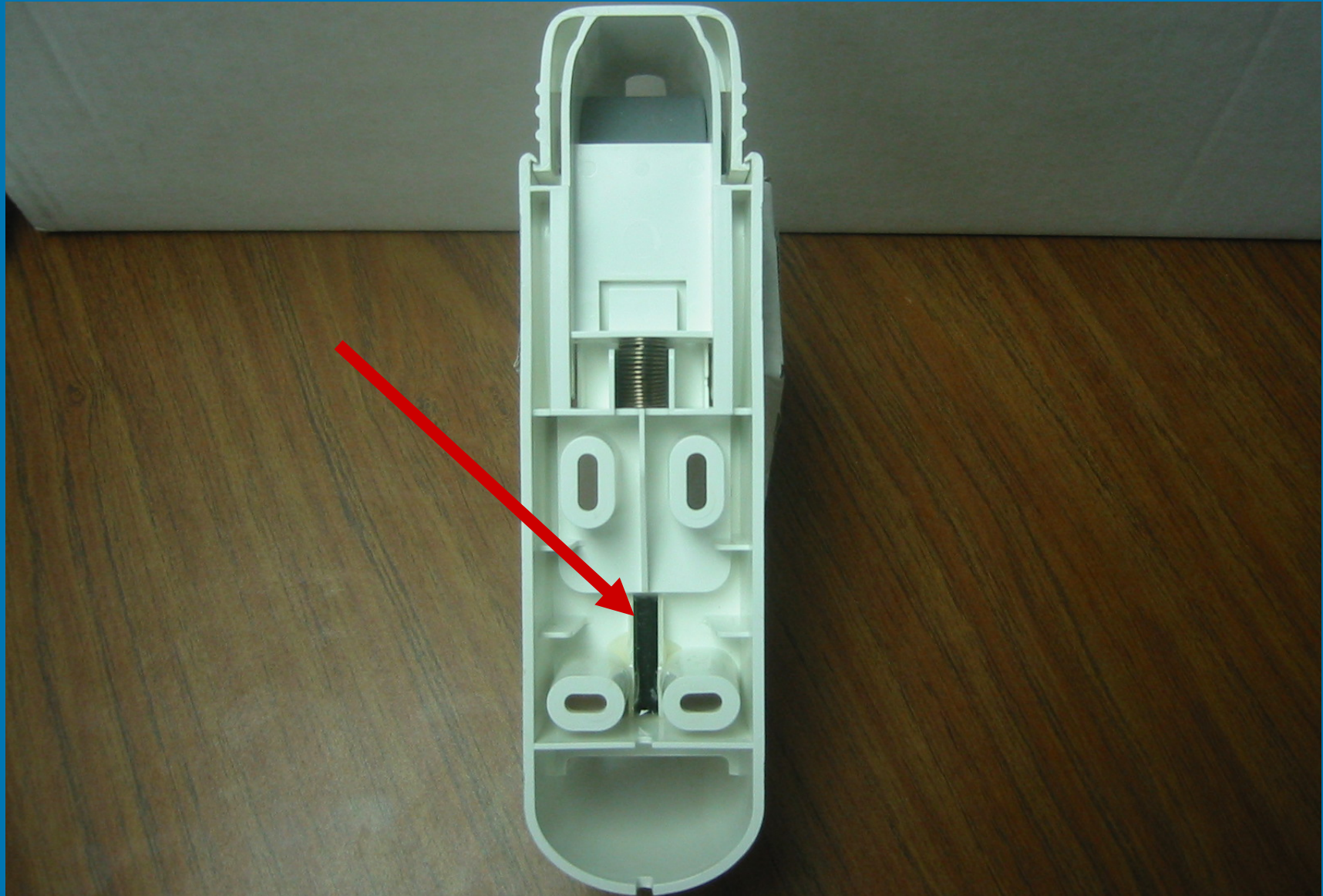
Note: The magnet is positioned under the EPIRB and is not visible until the EPIRB is removed.



Category 1 Pains Wessex 406 MHz

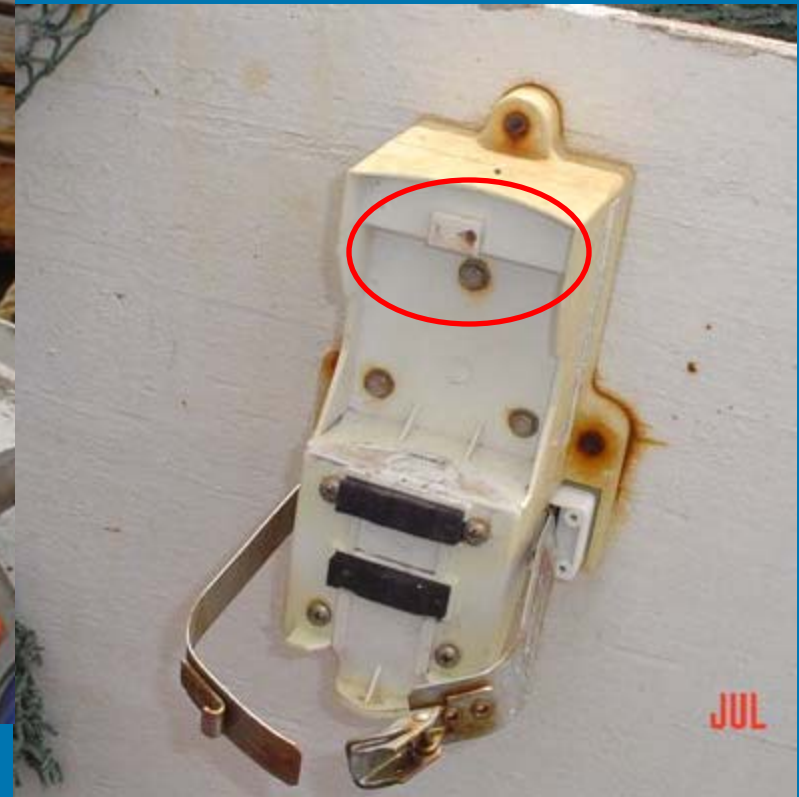


Category 2 Pains Wessex 406 MHz



Alden / NAT S1010

- Magnet Location



01/18/2008

L.T.Yarbrough, D7 CFVS

IHDB False Alert Reason

- Beacon Mishandling
- Beacon Malfunction
- Mounting Failure
- Environmental Conditions
- Unknown

IHDB False Alert Reason

- Beacon Mishandling
 - False Alert – Mishandling – Installation
 - Exposed to sea action or ship's work, equipment struck beacon, **improperly placing beacon in bracket.**

IHDB False Alert Reason

- Beacon Mishandling
 - False Alert – Mishandling – Installation
 - False Alert – Mishandling – Testing
 - Failure to follow proper testing procedures
 - Repair by owner or service center causing activation.
 - Improper removal from bracket while testing, cleaning.
 - Beacon shipped while armed and activated.
 - Beacon stored improperly

IHDB False Alert Reason

- Beacon Mishandling
 - False Alert – Mishandling – Installation
 - False Alert – Mishandling – Testing
 - False Alert – Usage
 - Illegal activation: hoax, vandalism, theft
 - Accidental activation: reported, NFI
 - Demonstrated / test not co-ordinated.

IHDB False Alert Reason

- Beacon Mishandling
 - False Alert – Mishandling – Installation
 - False Alert – Mishandling – Testing
 - False Alert – Mishandling – Usage
 - False Alert – Mishandling – Disposal
 - Beacon discarded as trash, abandoned.

IHDB False Alert Reason

- Beacon Malfunction
 - False Alert – Malfunction – Switch
 - Switch broken

IHDB False Alert Reason

- Beacon Malfunction
 - False Alert – Malfunction – Switch
 - False Alert – Malfunction – Water Intrusion
 - Water leakage due to manufacturing defect, cracked casing, faulty seal.
 - **Not exterior of beacon getting wet.**

IHDB False Alert Reason

- Beacon Malfunction
 - False Alert – Malfunction – Switch
 - False Alert – Malfunction – Water Intrusion
 - False Alert – Malfunction – Test
 - Transmitted non-inverted frame (?)

IHDB False Alert Reason

- Beacon Malfunction
 - False Alert – Malfunction – Switch
 - False Alert – Malfunction – Water Intrusion
 - False Alert – Malfunction – Test
 - False Alert – Malfunction – Electronics
 - Electronics malfunction
 - Non-GPS electronics malfunction

IHDB False Alert Reason

- Mounting Failure

**67% Of False Alerts
Mounting Failure.**

IHDB False Alert Reason

- Mounting Failure
 - False Alert – Mounting – Bracket
 - Strap or bracket failure
 - Beacon fell out of bracket

**67% Of False Alerts
Mounting Failure.**

IHDB False Alert Reason

- Mounting Failure
 - False Alert – Mounting – Bracket
 - False Alert – Mounting – Mounting Release
 - Hydrostatic release failure (?)

**71% Of False Alerts
Mounting Failure.**

IHDB False Alert Reason

- Mounting Failure
 - False Alert – Mounting – Bracket
 - False Alert – Mounting – Mounting Release
 - False Alert – Mounting – Magnet
 - Switch magnet not effective or missing.

**67% Of False Alerts
Mounting Failure.**

IHDB False Alert Reason

- Environment Conditions
 - False Alert – environmental Conditions
 - Extreme Weather conditions (?)
 - Hurricane / cyclone conditions, vsI knocked down, heavy seas, ice build-up. (?)

False Alert ELT – environmental Conditions - YES



01/18/2008

L.T.Yarbrough, D7 CFVS

False Alert EPIRB– environmental Conditions - NO



01/18/2008

L.T.Yarbrough, D7 CFVS

IHDB False Alert Reason

- Unknown
 - False Alert – Reason Unknown
 - Confirmed Beacon False Alert
 - No feedback on why activated
 - Investigation in to beacon activation cause was inconclusive.

01/18/2008

L.T.Yarbrough, D7 CFVS